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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,255	08/31/2006	Hidenori Katsumura	043890-0939	8158

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MCDERMOTT WILL & EMERY LLP  
600 13TH STREET, NW  
WASHINGTON, DC 20005-3096

EXAMINER
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BAISA, JOSELITO SASIS

ART UNIT	PAPER NUMBER
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2832

MAIL DATE	DELIVERY MODE
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06/30/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/591,255	<b>Applicant(s)</b> KATSUMURA ET AL.	
	<b>Examiner</b> JOSELITO BAISA	<b>Art Unit</b> 2832	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 February 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/15/10</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. [JP63316405] in view of Wada et al. [3725836].

Nakamura discloses a varistor layer 5; and a board 4 laminated with the varistor layer 5 [Abstract, Figure1].

Nakamura discloses the instant claimed invention discussed above except for the varistor layer comprises a material including at least bismuth oxide, the bismuth oxide is diffused to the board by sintering the varistor layer and the board, and a bismuth oxide diffusing layer is provided at the board.

Wada discloses varistor layer comprises a material including at least bismuth oxide, the bismuth oxide is diffused to a board by sintering the varistor layer and the board, and a bismuth oxide diffusing layer is provided at the board 1 [Col. 3, Lines 20-52].

It would have been obvious to one having ordinary skill in the art at the time of the invention to use at least bismuth oxide in varistor as taught by Wada to the varistor of Nakamura.

The motivation would have been to improve the  $n$  value (steepness) of the varistor [Col. 3, Lines 42-45].

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Regarding claim 2, Nakamura discloses a board 4 is a ceramic (alumina) board [Abstract].

Regarding claim 3, Nakamura discloses the board 4 is formed by laminating a glass ceramic layer including glass on the ceramic (alumina) board [Abstract].

Regarding claim 4, Nakamura discloses the glass is diffused in the board 4, and a glass diffusing layer is provided at the board [Abstract]. Wada further discloses such process in column 3, lines 20-29.

With respect to limitation “*diffused on the board*” has been considered but not given much patentable weight. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ964, 966 (Fed. Cir. 1985).

Regarding claim 5, Nakamura discloses an adhesive layer is provided between the glass ceramic layer and the (alumina) board, the glass is diffused in the board by way of the adhesive layer, and a glass diffusing layer is provided at the board [Abstract].

Regarding claim 6, Nakamura discloses a glass ceramic layer 6 including glass is laminated on the varistor layer 5 [Abstract].

Regarding claim 7, Wada discloses the varistor layer is formed by laminating and sintering a plurality of unsintered green sheets including a powder of a varistor material, and a

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mean particle diameter of the powder of the varistor material falls in a range of 0.5-2.0 $\mu$ m [Col. 3, Lines 20-29] and [Col. 4, Lines 1-2].

Regarding claim 8, Wada discloses the varistor material comprises zinc oxide 4 as a major component and at least bismuth oxide as an additive, and a mean particle diameter of a powder of the bismuth oxide is equal to or smaller than 1.0 $\mu$ m [Col. 3, Lines 30-45].

Regarding claim, Wada discloses an adhesive layer is provided between the varistor layer and the board, and the bismuth oxide is made to be diffused in the board by way of the adhesive layer [Col. 3, Lines 20-45].

Regarding claim 10 and 11, Wada discloses the board is constituted by a circuit board having an electronic component circuit formed therein [Col. 1, Lines 35-43].

Regarding claim 12, Wada discloses the board can be constituted by a low temperature sintering ceramic board [Col. 3, Lines 25-29].

Regarding claims 13-15, Wada discloses the bismuth oxide diffusing layer is made of bismuth oxide and the material of the board provided between the varistor layer and the board 1[Col. 3, Lines 20-45].

### ***Response to Argument***

Applicant's arguments with respect to claims 1-15 have been considered but are not persuasive.

Claims 1-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakamura et al. (JP 63-316405) in view of Wada et al (USP No. 3,725,836).

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Independent claim 1 recites a static electricity countermeasure component comprising a varistor layer and a board laminated with the varistor layer. The varistor layer comprises a material including at least bismuth oxide. The bismuth oxide is diffused to the board by sintering the varistor layer and the board. Bismuth oxide diffusing layer is provided at the board.

The Applicant, in the recent response dated 18 February 2010 on page 3, argues that the reference Wada does not disclose a varistor paste (Zinc oxide and Bi) that is sintered after application to a board. The Applicant urged that firing the varistor of Wada at 400-850°C, after the paste is applied to the board, will not be sufficient to separate the Bismuth oxide from the Zinc oxide and diffuse to the board. The Examiner disagrees.

*Sintering* is a method for making objects from powder by heating the material in a sintering furnace below its melting point. Wada in column 3, lines 21-29 discloses the following:

The varistor paste applied to the insulating base is dried, if necessary, to remove the liquid vehicle and then fired in an electrical furnace at a temperature at which the glass frit fuses so as to bond the zinc oxide powder particles and to adhere firmly to the insulating base. The firing temperature may vary with the composition of glass frit. It is preferable to adjust the firing temperature so as to be 400° to 850°C.

Wada teaches a varistor paste applied to an insulating base (board), fired in an electrical furnace to bond the zinc oxide powder (with Bismuth oxide as mentioned in line 46 of column 3) to adhere firmly to the insulating base. Therefore, *firing* the varistor paste with the insulating base *is sintering*. Through this process Bismuth is diffused to the board.

***Conclusion***

The applicant's amendment has been fully considered. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSELITO BAISA whose telephone number is (571)272-7132. The examiner can normally be reached on M-F 5:30 am to 2:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Elvin G Enad/  
Supervisory Patent Examiner, Art Unit 2832

Joselito Baisa  
Examiner  
Art Unit 2832

/J. B./  
Examiner, Art Unit 2832